

***UC Davis Department of Civil and
Environmental Engineering***

Qualifying Exam Info Session

June 2nd, 2021





The PhD consists of:

1. Coursework (Years 1 & 2 or 3)
2. The Qualifying Exam (2nd or 3rd year)
3. Your Dissertation & Exit Seminar
4. Hard work

PhD Timeline - Example



Year 1:

- Coursework + initial research
- Preliminary program of study by winter

Pre-

Year 2:

- Coursework + research
- Final program of study (when courses are done)

- Identify and ask QE committee
- If you have an MS already:
 - Write prospectus (ENV, WRE, and TRA) in Winter
 - Take QE in Spring

Peri-

Year 3:

- If no MS, write prospectus (ENV, WRE, and TRA) and take QE
- Research # + *begin dissertation*

Year 4:

- Research + begin/continue dissertation

Post-

Year 5:

- Research + final dissertation + Exit Seminar



Where you are! Program of Study

46 units total ~ 11.5 courses

- Generally, take 2 or 3 courses per quarter
- 2 per quarter → 6 quarters
 - Allows more time to get started on research
- 3 per quarter → 4 quarters

Acceptable Programs of Study must satisfy the following qualitative criteria:

- **Depth:** knowledge of theoretical and practical aspects of the field usually, but not always;
- **Breadth:** should expand foundational knowledge;
- **Coherence:** courses taken should be complementary and intentionally chosen.

Qualifying exam



What is it?

- It is an exam that qualifies you to:
 - conduct independent research; and,
 - complete a doctoral dissertation
- Based on your demonstrated ability to:
 - formulate a solid research proposal and methods;
 - Critically and creatively think;
 - Synthesize and conceptualize; and
 - Communicate your depth and breadth of knowledge



When to take it?

- **You are expected to take your QE by the end of 2nd year or early in 3rd year**
 - If you already have an MS, you should plan on Y2
 - If you do not have an MS, you should plan on Y3 (or earlier)
 - Talk to your MP about exact timing

Requisites:

- Must have completed all coursework first (up to two courses taken concurrent)
- Final Program of Study
- QE committee



What you need to do?

Administrative:

- Create your QE committee
 - Identify members with your major professor
 - Invite members
 - Have some discussion with individual members
- Schedule the exam
 - It is a pain!!
 - Takes time and possibly many iterations
 - Do this with time (2 – 3 months in advance)
 - Consider periods that it may be more difficult to convene
 - Talk to the committee chair



QE Committee

- 4 members
 - Determine with your major professor
 - Probably includes your PoS Committee members
 - At least 3 members from CEE Grad Group
 - At least 1 external member
 - Can include your major professor
- Chair
 - must be from CEE Grad Group
 - Cannot be your major professor
- Must submit form to Graduate Staff Advisor for approval by Grad Studies
 - Submit at same time that you schedule your exam (one month or earlier)



What you need to do? - Continued

Preparation:

- Depends on your group, but...
- Coursework
 - Review your classes and key concepts in your field
 - You may get specific questions, or...
 - general open-ended problems for which you need to think about how to approach it
 - Usually, committee members will ask according to their focus area

Remember, you need to show you have a solid understanding about general engineering topics, but most importantly, those key concepts in your field!!!



What you need to do? – Continued 2

Prospectus:

- Only for WRE, ENV, and TRA
 - Research Proposal
 - Talk to your major professor and Committee Chair

Presentation:

- Either from prospectus or research topic
- 15-25 minutes
- Talk to the Committee Chair
- Practice
- Practice
- Practice

We want you to succeed!

Questions may challenge you to think, and while we expect the right answer, your response and methodological approach can be even more important for us!

QE formats



1. Written research prospectus

What is it?

- Independently prepared research proposal (10-15 pages) describing:
 - Dissertation-specific research motivation, aims, hypotheses, progress to date, and research approach
 - Exact scope to be discussed with the QE committee Chair
 - While topic can be discussed with others, the writing must be by the student
 - Provide to QE committee at least 2 weeks before exam
 - Works best when student discuss the research with QE members in advance

Objective:

- Demonstrate individual ability to formulate a solid research proposal and methods



2. Oral Portion of the Exam

What is it?

- Broad examination of topics related to student research, academic preparation, and reading to produce dissertation

Objective:

- Demonstrate critical and creative thinking abilities,
- Ability to synthesize, and
- Depth and breadth of knowledge

Format:

- About 2-3 hours in length
- 15-25 minutes presentation about the proposal
- Followed by questions about research and knowledge
- Consult with QE Chair



Oral Presentation

What is it?

- Student presentation and oral examination

Objectives:

- Evaluate students command of the field, with both breadth and depth of knowledge
- Assess ability to conceptualize a research topic
- Ability to successfully produce a dissertation

Format:

- About 2-3 hours in length
- 15-25 minutes presentation about research topic
- Consult with QE Chair about scope of the presentation

Questions